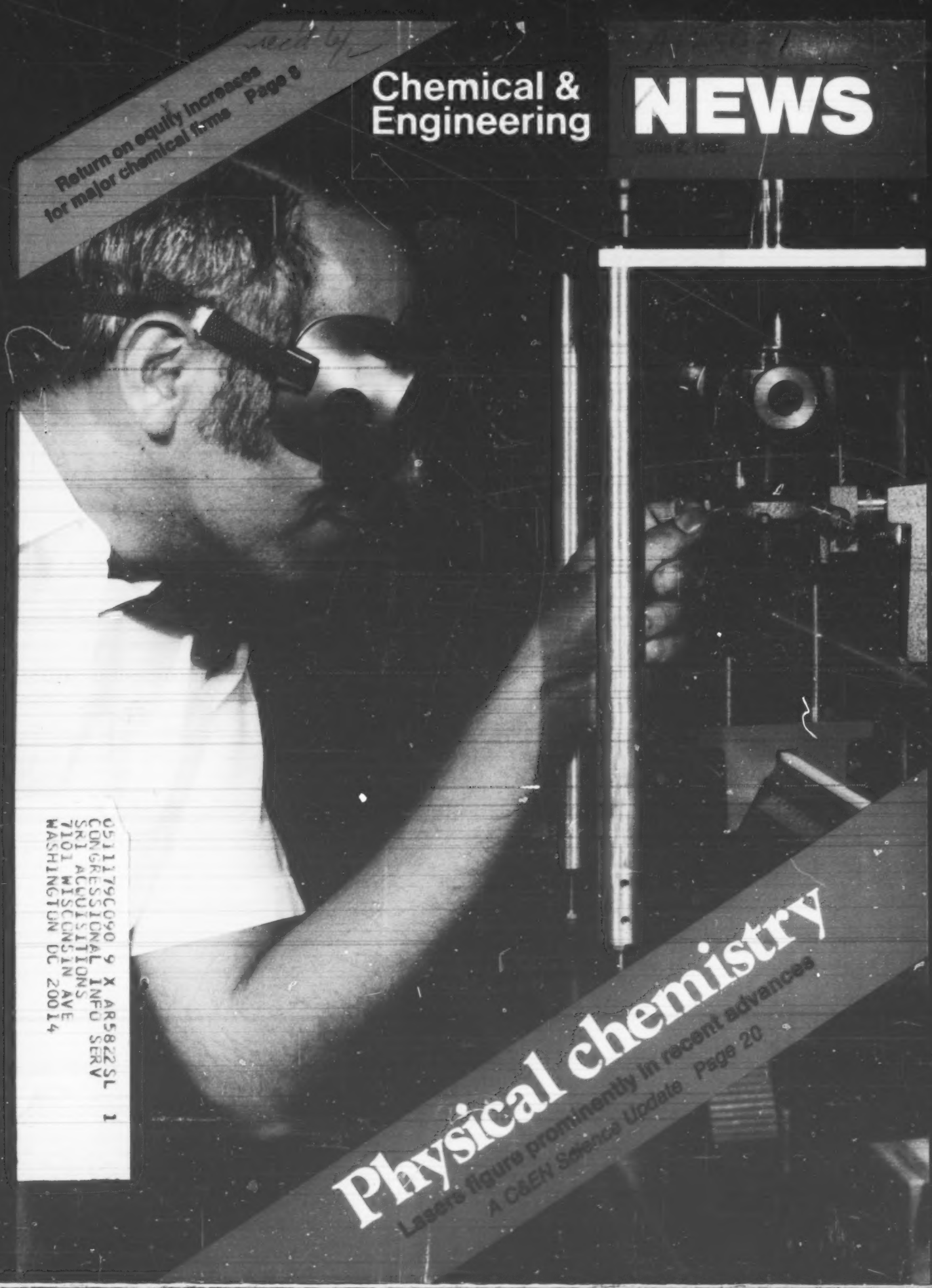
Chemical & Engineering NEWS
June 2, 1980

Return on equity increases for major chemical firms Page 8



Physical chemistry

Lasers figure prominently in recent advances

A C&EN Science Update Page 20

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Chemical & Engineering NEWS

Cover: Naval Research Lab chemist uses argon ion laser to measure low-temperature Raman spectrum of alkali halide crystals

2 Letters
3 Editor's Page

Concentrates
7 Business
12 Government
17 Science/Technology

The Departments
33 Meetings
34 People
48 Newscripts

News of the Week

- ***New York task force reveals*** *circumstantial evidence that the federal government dumped toxics in Love Canal area.* ***Page 4***
- ***Royal Society of Chemistry,*** *formed by merger of two U.K. chemical societies, is headed by Sir Ewart Jones.* ***Page 4***
- ***The petrochemical industry may suffer*** *feedstock shortages under present allocation rules, GAO reports.* ***Page 5***
- ***A picture of the surface of Venus*** *is emerging from radar mapping data provided by NASA's Pioneer orbiter.* ***Page 5***
- ***NRC's Food & Nutrition Board report*** *emphasizes nutritious, well-balanced diet, moderate use of salt.* ***Page 6***
- ***Esso Nederland*** *will build a pilot plant to convert coal to methane.* ***Page 6***
- ***EPA okays*** *resuming use of nitrilotriacetic acid in detergents.* ***Page 6***

Business

- ***Chemical firms' return on equity rises*** *after declining since 1974.* ***Page 8***

International

- ***Mediterranean countries sign treaty*** *to control pollution of the sea emanating from land-based sources.* ***Page 10***

Government

- ***Congress acts*** *on hazardous waste bills despite budget deadline pressure.* ***Page 14***
- ***Industry's concerns*** *over recombinant DNA bill include confidentiality of data, availability of investment capital.* ***Page 16***

Science

- ***Structure and function of calmodulin,*** *calcium-modulating protein, are being clarified by researchers.* ***Page 18***

Science Update

- ***Physical chemists*** *are using many new techniques and models to study their field with greater precision.* ***Page 20***

Technology

- ***Nonpyrolytic processes to convert biomass*** *to commercial chemicals, using enzymes or acid hydrolysis, show promise.* ***Page 22***
- ***Chromatopyrography*** *improves pyrolysis CG by separating analysis of polymer and its volatile components.* ***Page 26***
- ***Fermentation unit sets record*** *of 75 days of nonstop production.* ***Page 27***

Education

- ***The number of women on faculties*** *of Ph.D.-granting chemistry departments is growing but at a snail's pace.* ***Page 28***

Books

- ***Peter Medawar's "Advice to a Young Scientist"*** *celebrates the reward of scientific research in pursuit of truth.* ***Page 30***

Return on equity turns up for chemical firms

Average return on equity for 36 basic chemical firms rose to 15.7% last year, after steadily declining from high of 17.9% in 1974

William J. Storck
C&EN, New York

Return on equity, or profits as a percentage of stockholders' equity, turned up steeply for 36 basic chemical companies last year, according to C&EN calculations. Average return on equity increased to 15.7% in 1979 for these companies from just 13.1% the year before.

The gains were good for both large and small chemical firms. For 21 companies with sales of more than $1 billion, average return on equity jumped to 15.4% from 12% in 1978. For the other 15 companies, return on equity rose to 17.7% from 14.8% the year before.

Return on equity is calculated by dividing after-tax income by total stockholders' equity. Stockholders' equity is normally made up of the par value of the stock issued by a company, the capital surplus of that stock over par value, and retained earnings. Although most corporations figure return on equity using average stockholders' equity during the year, C&EN has computed it by using stockholders' equity at year's end, thus yielding more conservative figures.

The increase in return on equity for the chemical companies ends an erosion that began after it hit a decade high of 17.9% in 1974. Since then return on equity has declined steadily to 13.1% in 1978.

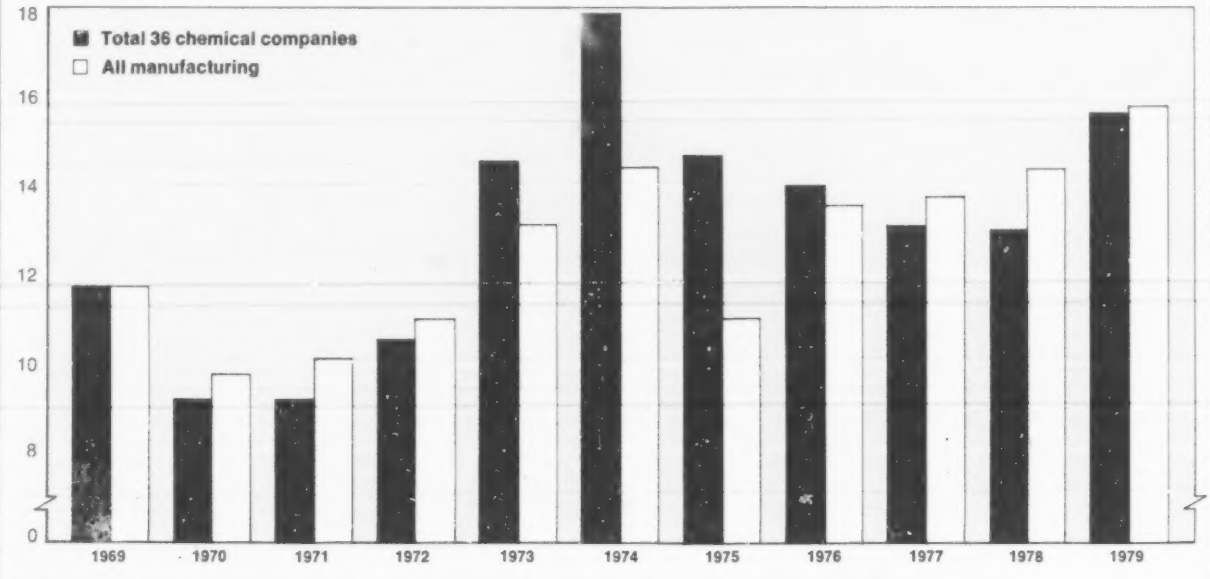
The upturn came more quickly for smaller chemical companies than for larger ones. In 1974 return on equity averaged 20% for 15 chemical companies with 1979 sales of less than $1 billion. By 1977, it had slipped to 12.1% after a bounce from 11.9% in 1975 to 12.9% in 1976. In 1978, however, return for these firms rose to 14.8%, then increased again in 1979 to 17.7%.

The 21 larger firms, which last year accounted for about 89% of equity and 87% of profits, had to wait until 1979 to see an increase in return on equity. After hitting 17.5% in 1975, return on equity took a dive to 12.0% in 1978. Only in 1979 were these larger companies able to increase return on equity, when it rose to 15.4%.

In 1979, earnings for the 21 larger companies increased an average of 29.2% from 1978 to a total of $4.6 billion, and equity increased 10.2%. Earnings for the 15 smaller companies increased an average of 65.4% to a total of $681 million, and stockholders' equity was increasing a much more modest 23.5% from the year before. For the 36 companies as a whole, profits increased 32.9% from 1978 to a combined $5.2 billion, and equity increased 11.3% to $33.7 billion.

One of the biggest factors causing the spurt in return on equity for the 15 smaller companies was a big runup in long-term debt during 1979. When debt increases, stockholders' equity is moderated, thus increasing return on equity. During 1979, long-term debt among the 15 smaller firms in-

Return on equity spurts for chemicals, but trails all manufacturing



[a] Income before extraordinary and nonrecurring items as a percentage of year-end equity. **Sources:** Company data, Federal Trade Commission

Return on equity for smaller firms outpaces that for big chemical companies

Return on equity[a]	1979	1978	1977	1976	1975	1974	1973	1972	1971	1970	1969
CHEMICAL COMPANIES WITH MORE THAN $1 BILLION IN SALES[b]											
Air Products	17.2	15.7	15.9	17.2	19.9	17.4	7.4	9.6	7.8	9.6	9.1
Akzona	7.9	6.8	2.5	1.8	2.5	10.4	11.8	8.2	9.4	11.5	14.5
Allied Chemical	14.3	9.4	11.6	11.4	11.2	14.9	10.6	7.8	6.4	5.5	9.1
American Cyanamid	12.5	12.4	11.9	12.4	14.3	15.2	12.7	12.2	11.2	11.9	13.0
Cabot	18.4	14.5	14.0	11.1	6.5	10.9	9.1	8.1	8.4	10.0	8.7
Celanese	13.5	11.8	9.4	9.3	7.2	10.6	10.7	8.0	9.1	8.0	12.6
Diamond Shamrock	17.5	14.9	20.4	20.8	21.4	19.5	11.6	7.0	6.7	8.1	8.0
Dow Chemical	20.1	16.9	17.9	21.5	25.9	28.9	17.6	14.1	12.8	11.5	12.8
Du Pont	19.5	17.4	13.4	12.1	7.6	11.5	17.5	13.7	12.6	12.3	14.1
Ethyl Corp.	16.0	14.1	14.8	14.5	14.0	18.6	15.4	13.9	13.2	13.0	13.0
W. R. Grace	14.2	12.2	11.7	11.8	15.9	14.5	11.0	8.6	6.3	7.5	7.0
Hercules	15.3	12.6	7.6	14.4	4.9	14.0	15.4	12.9	10.8	11.7	11.1
International Minerals	15.3	16.7	16.7	23.3	35.4	18.6	10.2	8.8	6.0	2.2	1.6
Monsanto	11.9	11.7	11.5	16.2	15.5	18.4	16.0	9.4	7.7	6.5	9.0
National Distillers	15.1	12.3	12.0	13.8	11.2	16.4	9.6	7.5	7.0	7.7	8.7
Olin	9.6	9.1	12.0	12.2	11.1	9.9	8.5	7.0	4.8	4.3	7.6
Pennwalt	13.7	13.4	13.5	12.3	12.0	11.1	9.1	7.5	6.1	5.8	7.9
Rohm & Haas	15.1	10.4	7.9	8.9	5.8	14.4	12.8	12.4	9.9	9.1	11.2
Stauffer Chemical	16.0	16.6	17.1	18.9	19.3	19.4	13.5	10.5	8.2	8.8	10.3
Union Carbide	13.8	10.8	11.3	14.4	13.9	21.0	14.1	10.8	8.3	8.7	10.5
Williams Cos.	9.3	4.1	8.5	8.2	17.9	18.2	12.6	12.9	13.7	16.9	17.0
CHEMICAL COMPANIES WITH LESS THAN $1 BILLION IN SALES[b]											
Big Three Industries	15.6	15.9	15.7	13.4	14.9	16.4	12.9	11.3	14.0	14.7	24.0
Crompton & Knowles	10.8	10.2	9.7	8.6	5.0	9.2	9.9	9.0	5.3	8.7	10.0
Ferro	15.2	15.5	13.2	14.0	10.5	16.0	17.9	14.6	12.3	9.6	12.7
First Mississippi	4.9	4.5	4.6	18.0	17.6	127.0	169.3	36.0	11.2	c	c
Freeport Minerals	26.7	10.4	6.2	14.0	10.7	25.0	11.8	7.3	5.7	6.9	12.4
International Flavors	21.5	22.2	20.8	19.6	14.4	20.2	22.5	20.0	18.3	18.6	18.8
Lubrizol	24.2	24.0	21.4	19.5	20.3	24.9	21.6	18.4	18.7	20.1	19.2
Mallinckrodt	18.0	14.6	15.4	15.4	14.0	14.6	12.1	10.1	9.6	9.0	7.8
Nalco Chemical	24.2	19.7	24.1	23.8	20.3	19.6	20.4	18.9	18.2	16.1	20.2
Petrolite	16.7	18.3	21.8	22.0	18.5	18.9	15.1	12.4	11.7	13.6	11.4
Reichhold Chemicals	7.5	6.2	7.2	10.8	12.3	20.9	11.6	9.1	4.4	4.1	9.5
Stepan Chemical	11.3	10.6	14.0	14.4	12.7	15.3	13.9	11.6	10.3	10.0	11.1
Texasgulf	15.7	6.5	6.2	8.1	16.2	27.8	19.2	4.8	5.1	10.2	18.0
Virginia Chemicals	13.4	14.2	11.5	17.2	11.9	12.2	11.6	8.2	7.2	4.4	13.2
Witco Chemical	18.1	16.5	-3.7	14.2	9.4	17.0	13.4	11.3	9.6	10.3	11.0
21 LARGEST COMPANIES	**15.4**	**13.2**	**13.3**	**14.2**	**15.2**	**17.5**	**14.6**	**10.7**	**9.3**	**9.1**	**11.6**
15 OTHER COMPANIES	**17.7**	**12.4**	**12.1**	**12.9**	**11.9**	**20.0**	**14.5**	**9.7**	**8.5**	**9.8**	**13.1**
TOTAL 36 COMPANIES	**15.7**	**13.1**	**13.2**	**14.0**	**14.7**	**17.9**	**14.6**	**10.6**	**9.2**	**9.2**	**11.8**

a After-tax income before extraordinaries and nonrecurring items as a percentage of stockholders' equity. b Based on 1979 sales. c Deficit.

creased 38.1% to $1.08 billion at the end of 1979 from $782 million at the end of 1978. The increase for the larger firms was much more modest. Year-end debt for 1979 for the 21 bigger firms stood at $14 billion, a 9.8% increase from year-end 1978.

However, in spite of the hefty increase in return on equity, it is not all good news for chemical companies. Even with large increases in profits last year, chemical companies still lag the average for all manufacturing in return on equity, although they closed the gap considerably in 1978. Although return on equity for chemical companies increased to 15.7% in 1979 from 13.1% the year before, return on equity for all manufacturing as figured by the Federal Trade Commission increased to 15.8% last year from 14.4% in 1978. In fact, the last year that the chemical industry led the all-manufacturing category in return on equity was in postrecession 1976. But most important, chemicals led all manufacturing by a wide margin (17.9% to 14.4%) in the boom year of 1974. This may parallel 1979 as a year immediately preceding recession, but it does not parallel in terms of the comparison of return on equity.

Last year was not good for all of the chemical companies in terms of return on equity, either. Of the 36 companies, return on equity declined for seven. These companies were International Minerals & Chemical and Stauffer Chemical, among the larger firms, and Big Three Industries, Ferro, International Flavors & Fragrances, Petrolite, and Virginia Chemicals among the smaller ones.

The leader in return on equity among the smaller companies and for the whole group was Freeport Minerals with 26.7%. Freeport was followed among the smaller firms by Lubrizol and Nalco Chemical, both with 24.2%. Among the larger companies, Dow Chemical was second, with 20.6%. The lowest return on equity, 4.9%, was chalked up by First Mississippi. □

Women on chemistry faculties: jobs still few

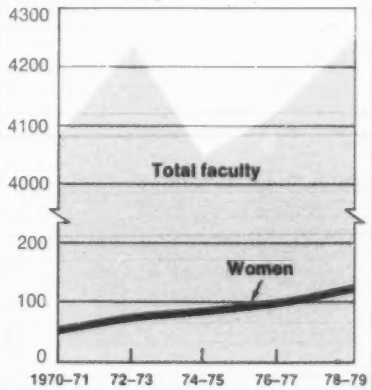
The toehold that women have on the faculties of Ph.D.-granting chemistry departments continues to be just that—a toehold. But at least it has doubled in recent years.

The latest survey conducted for the American Chemical Society's Women Chemists Committee reveals that during the 1978–79 academic year 129 women were on such faculties. This represented 3.0% of the total. The first survey conducted for the committee covered the 1970–71 academic year. It showed just 60 women on Ph.D.-granting chemistry faculties—1.5% of the total.

A closer look at the numbers reveals a drop over these years in the number of faculties with no women and a corresponding gain in those with just one. And a C&EN analysis of the data seems to indicate that women are still being hired in disproportionately low numbers—apparently at a lower rate than might be expected from their substantial and growing representation in new Ph.D. graduating classes.

The information for these surveys, which were also conducted for the 1972–73, 1974–75, and 1976–77 academic years, has been obtained from the Directory of Graduate Faculties, which is published by ACS. The studies include women only with the rank of assistant professor or above.

Women make up 3% of Ph.D.- granting faculties



a Of all Ph.D.-granting chemistry departments.
Source: Report compiled for ACS Women Chemists Committee

If a 4% attrition rate among faculty members is assumed, it appears that hiring by Ph.D.-granting chemistry departments must have totaled approximately 1500 during the eight-year period covered by the studies. If the same attrition rate is assumed among women faculty members, it appears that about 100 of this 1500, or about 7%, were women. By contrast, 11% of Ph.D. graduating classes over these years were women.

The initial study, for the 1970–71 academic year, revealed that of a total of 188 Ph.D.-granting chemistry departments the faculties of 139, or 74%, had no women. By 1978–79 this was down to 96, or 51% of the total. Over the same period the number of faculties with one woman member increased from 32 to 67.

Ten faculties have moved from no women in 1970–71 to two women in 1978–79. These are Brown University; University of California, San Diego; University of Colorado; Massachusetts Institute of Technology; University of Massachusetts, Amherst and Boston; New Mexico State University; New York University, Washington Square; University of North Carolina; Purdue University; and University of Texas, Austin. Over these same years, the chemistry faculty at the University of Maryland moved from one woman to three. The biggest gain of all for women was posted at the combined faculty of the colleges associated with the University of Massachusetts, the gain being from one woman out of a total of 13 faculty members in 1970–71 to five women out of a total of 24 in 1978–79.

Thirteen chemistry faculties had fewer women in 1978–79 than in 1970–71. They include Rockefeller University, down from three to one; the University of Cincinnati, down from two to zero; and the University of Houston, down from two to one. And the following 10 schools dropped from one to zero: George Washington University; Georgetown University; Louisiana State University; University of Nebraska, Lincoln; University of New Hampshire; University of New Orleans; University of Pittsburgh; Temple University; Texas Technical University; and Virginia Commonwealth University. □

These are the largest all-male faculties

School	Total faculty[a]
U of California, Los Angeles	42
U of Minnesota	39
U of Illinois, Urbana	37
Louisiana State U, Baton Rouge	35
U of Florida	33
State U of New York, Stony Brook	33
U of Nebraska, Lincoln	32
U of Washington	32
U of Chicago	31
Iowa State U	31
U of Pittsburgh	31
Brigham Young U	30
U of California, Davis	30
Georgia Institute of Technology	30
Oregon State U	30
U of Arizona	29
Cornell U	29
Colorado State U	28

a For 1978–79 academic year.

These chemistry faculties have at least two women

School	Faculty[a] Total	Women
U of Massachusetts, associated colleges	24	5
Portland State U	21	5
Rutgers U, New Brunswick	40	5
American U	13	4
Polytechnic Inst. of N.Y.	19	4
U of Maryland	49	3
Auburn U	28	2
Brown U	22	2
U of California, San Diego	34	2
City U of New York	87	2
U of Colorado	33	2
U of Delaware	27	2
Massachusetts Inst. of Technology	40	2
U of Massachusetts, Amherst and Boston	38	2
U of Missouri	17	2
New Mexico State U	22	2
NYU, Washington Square	22	2
U of North Carolina	33	2
Northern Illinois U	22	2
Purdue U	49	2
U of Southern Mississippi	14	2
U of Texas, Austin	42	2
U of Toledo	20	2
Utah State U	14	2
U of Wyoming	17	2

a For 1978–79 academic year.